

## PATENT SPECIFICATION

391,181



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Complete Accepted: April 21, 1933.

## PROVISIONAL SPECIFICATION.

Improvements in or relating to Earthenware and Stoneware Tubes,  
Pipes, Gullies and the like.

I, GOMER LEWIS WATKINS, a British subject, of Heathfield, Lake Road North, Cardiff, do hereby declare the nature of this invention to be as follows:—

In the manufacture of tubes, pipes, gullies and the like, glazed or unglazed, from earthenware and stoneware, the usual method of making the longitudinal joint is to form a plain butt joint or the equivalent thereof wherein the abutting faces are serrated. Pipes and the like so made are liable to blisters, laminations, cracking up, and general irregularities, and the object of the present invention is to provide an improved joint whereby such defects are obviated, and the general strength of the resultant article improved. According to the invention the joint is constructed as a scarf, semi-scarf, or V-joint or any combination thereof, or a similar type of joint combined with plain butt portions.

In one form a V-shape tongue fits into a V-shape groove, the tongue extending either from the edges of the pipe or the like surfaces or spaced inwardly there-

from to leave small abutments; the latter may be curved or sunk to form grooves. In another form a scarf joint is made by surfaces inclined to the radius of the pipe or the like, and these surfaces may be a simple plane from one surface of the pipe to the other, or returned at each end to form a small groove at one end and a corresponding small tongue or rib at the other. In other forms the inclined surfaces of a scarf joint are given various interfitting shapes and configurations such as by corrugating the same or otherwise providing a bump or bumps (in section) and a groove or grooves.

Besides being applicable to all tubular articles, irrespective of sectional or other shape, it is to be understood that the invention is also applicable to the manufacture of articles such as large bowls, tanks and similar containers of earthenware or the like.

Dated the 21st day of July, 1931.

EDWIN C. AXE, A.I.M.E.,  
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Agent for the Applicant.

## COMPLETE SPECIFICATION.

Improvements in or relating to Earthenware and Stoneware Tubes,  
Pipes, Gullies and the like.

I, GOMER LEWIS WATKINS, a British subject, of Heathfield, Lake Road North, Cardiff, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to tubes, pipes, gullies and other hollow goods of earthenware, stoneware, and the like wherein, during the course of manufacture and shaping, the plastic mass in assuming its hollow or tubular form becomes divided into longitudinal sections which are subsequently again pressed together resulting in joins along the length of the article.

For instance, in pressing pipes of clay,

for example, through an annular orifice between an outside die and an inside core or dod, the dod holder forms an obstruction to the material before it reaches the annular shaping orifice, and the radial arms of the spider-like holder divide or cleave the plastic mass into individual strips of sector shape as it is squeezed past the dod-holder. If the dod holder is of other configuration the cross-sectional shape of the strips will vary, but in any event the strips meet and join again in the annular space leading to the shaping orifice, the joint always being a substantially plain butt joint, i.e. with more or less radially disposed faces, parallel to the axis of the press.

It can be accepted, therefore, that in the manufacture of tubes, pipes, gullies and the like, glazed or unglazed, from earthenware and stoneware, the usual method of making the longitudinal joint is to form a plain butt joint or the equivalent thereof such as a butt joint where-in the abutting faces are serrated. Pipes and the like so made are liable to blisters, laminations, cracking up, and general irregularities, and the object of the present invention is to provide an improved joint whereby such defects are obviated, and the general strength of the resultant, article improved. According to the invention the joint is constructed as a scarf, semi-scarf, or V-joint or any combination thereof, or a similar type of joint combined with plain butt portions.

20 Various embodiments of the invention will now be described with the aid of the accompanying drawings, wherein:—

Figures 1 and 2 illustrate fragments of a pipe in transverse section having known forms of joint;

Figures 3—6 are similar views but with joints according to the invention.

The plain butt joint of known practice is seen at A in Figure 1, whilst the known variation of merely serrating the faces of such a joint is seen at B in Figure 2.

In one form of the present invention as shown in Figure 3, a V-shape tongue C fits into a V-shape groove D, the tongue extending either from the faces E, E of the pipe or the like or spaced inwardly therefrom to leave small abutments F as illustrated; these abutments F may be curved as shown or sunk to form grooves.

40 In another form (see Figure 6) a scarf joint G is made by two elongated lapping surfaces or the like, and these surfaces may be a simple plane from one surface E of the pipe to the other, or returned at each end to form a small groove H at one end and a corresponding small tongue or rib J at the other. In other forms as depicted in Figures 4 and 5 the inclined surfaces of a scarf joint are given various 45 interfitting shapes and configurations such as by corrugating the same or otherwise providing a bump or bumps K (in section) and a groove or grooves L.

Besides being applicable to all tubular articles, irrespective of sectional or other shape, it is to be understood that the in-

vention is also applicable to the manufacture of articles such as large bowls, tanks and similar containers of earthenware and the like.

The invention is limited to the formation of particular joints in the mass of an article due to cleavage by elements in the extrusion press during manufacture of an integral pipe or other article, and does not embrace pipes, conduits and the like made up from pre-manufactured separate interfitting sections.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. Tubes, pipes, gullies and hollow goods of earthenware, stoneware or the like, which have joins formed in the mass due to cleavage by elements of the extrusion press, characterised in that the joining surfaces are formed as scarf, semi-scarf, V, or any combination thereof with or without plain butt portions.

2. An earthenware or similar tube or the like in which the material thereof has one or more V joints substantially as herein described with reference to Figure 3 of the accompanying drawings.

3. An earthenware or similar tube or the like in which the material thereof has one or more scarf joints, substantially as herein described.

4. An earthenware or similar tube or the like in which the material thereof has one or more scarf joints with returned ends to the scarf surfaces substantially as herein described with reference to Figure 6 of the accompanying drawings.

5. An earthenware or similar tube or the like in which the material thereof has one or more scarf joints as claimed in Claim 4 wherein the scarf surfaces are formed with interfitting bumps or corrugations and grooves.

6. An earthenware or similar tube or the like according to Claim 5 which is made with a join or joins substantially as herein described with reference to Figures 4 and 5 of the accompanying drawings.

Dated this 19th day of April, 1932.

EDWIN C. AXE, A.I.M.E.

27, Chancery Lane, London, W.C. 2,  
Agent for the Applicant.

[This Drawing is a reproduction of the Original on a reduced scale]

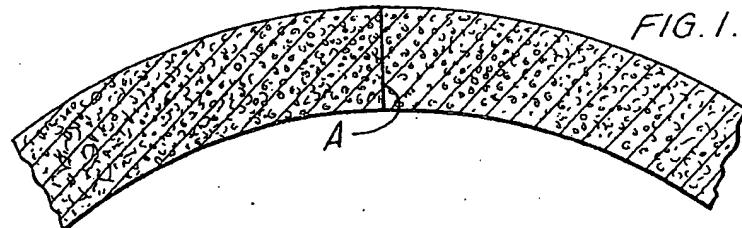


FIG. 1.

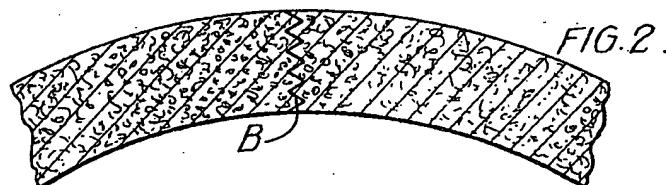


FIG. 2.

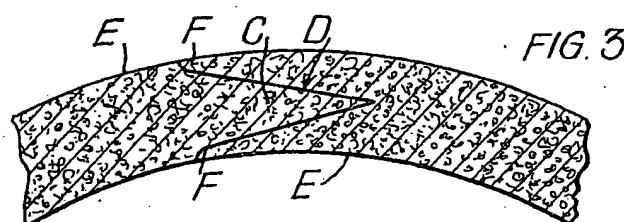


FIG. 3.

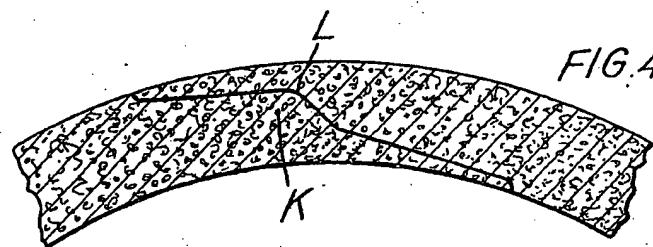


FIG. 4.

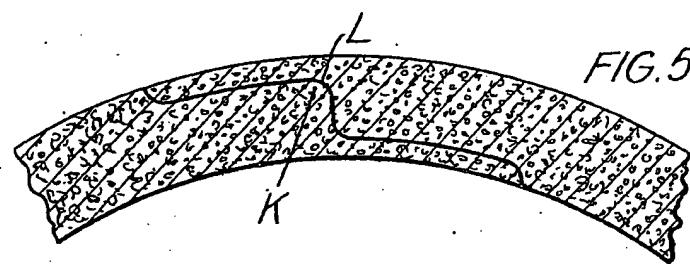


FIG. 5.

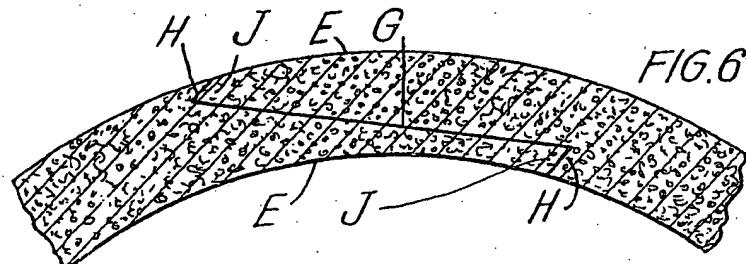


FIG. 6.